

**What is Claimed is:**

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Aa  
1. A method for obtaining document constraint descriptors based on user signals, the method comprising:

(A) receiving user signals indicating a set of attribute-value relations that can apply to documents;

(B) using the user signals to obtain logical relations equivalent to the attribute-value relations; and

(C) using the logical relations to obtain a document constraint descriptor defining a set of one or more constraints equivalent to the logical relations.

2. The method of claim 1 in which the method is performed with a machine that includes user interface circuitry for receiving user signals and in which (A) comprises:

(A1) receiving a series of one or more user signals through the user interface circuitry, the series of user signals indicating the attribute-value relations.

3. The method of claim 2 in which the series of user signals includes two or more user signals.

4. The method of claim 2 in which the machine is a portable computing device and the user interface circuitry includes a touchscreen or a keyboard.

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5. The method of claim 2 in which the machine is a fixed computing device and the user interface circuitry includes one or more of a touchscreen, a keyboard, and a mouse.

6. The method of claim 2 in which the machine is a multifunction device, in which the user interface circuitry includes a scanner, and in which (A1) comprises:

scanning at least a part of an image-bearing portable medium to produce electronic signals; and

using the electronic signals to obtain the series of one or more user signals.

7. The method of claim 6 in which the medium is a form that includes one or more fields, at least one of the fields having a human readable indication of an attribute and an area that a user can mark to indicate a set of at least one value of the attribute.

8. The method of claim 2 in which the user interface circuitry includes display circuitry for presenting images to a user and selection circuitry the user can operate to provide signals indicating items in images presented by the display circuitry, in which the machine includes memory, and in which (C) comprises:

storing the document constraint descriptor in memory;

the method further comprising:

(D) presenting an image through the display circuitry that includes an item representing the document constraint descriptor;

(E) receiving a user signal from the selection circuitry indicating the item; and

(F) in response to the user signal, obtaining the stored document constraint descriptor.

9. The method of claim 1 in which the machine is connected through a network for accessing a repository of electronic documents; the method further comprising:

(G) solving the set of one or more constraints to obtain a solution and using the solution to obtain one or more document references, each document reference indicating an electronic document in the repository that satisfies the set of one or more constraints.

10. The method of claim 9 in which the user interface circuitry includes display circuitry for presenting images to the user and selection circuitry the user can operate to provide signals indicating items in images presented by the display circuitry; the method further comprising:

(H) presenting an image through the display circuitry that includes, for each document reference, an item representing the document reference;

(I) receiving a user signal through the selection circuitry indicating a first item representing one of the document references; and

(J) in response to the user signal, retrieving from the repository the electronic document indicated by the first item's document reference.

11. The method of claim 10 in which (J) comprises:

presenting a portion of the electronic document through the display circuitry.

12. The method of claim 10 in which the machine further includes printing circuitry and in which (J) comprises:

operating the printing circuitry to print the electronic document.

5/19/2007 13. A machine for obtaining document constraint descriptors based on user signals, the machine comprising:

a processor; and

user interface circuitry for providing user signals to the processor;

the processor operating to:

- receive user signals through the user interface circuitry indicating a set of attribute-value relations that can apply to documents;
- use the user signals to obtain logical relations equivalent to the attribute-value relations; and
- use the logical relations to obtain a document constraint descriptor defining a set of one or more constraints equivalent to the logical relations.

14. The machine of claim 13 in which the machine is a portable computing device.

15. The machine of claim 13 in which the machine is a fixed computing device and the machine is connected to a repository of electronic documents that includes one or more documents that satisfy the set of one or more constraints, the processor further operating to:

use the document constraint descriptor to solve the set of one or more constraints to obtain a solution, and use the solution to obtain one or more document references, each document reference indicating a document that satisfies the set of one or more constraints.

16. The machine of claim 15 in which the user interface circuitry includes display circuitry for presenting images to a user and selection circuitry the user can operate to provide signals indicating items in images presented by the display circuitry; the processor further operating to:

present an image through the display circuitry that includes, for each document reference, an item representing the document reference;

receive a user signal through the selection circuitry indicating an item representing a selected one of the document references; and

in response to the user signal, access the selected document reference.